

Appl. No. 09/774,976
Amtd. Dated October 29, 2004
Reply to Office action of 07/02/2004

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Listing of Claims:

Claim 1 (original): A method for determining a geographical region of a host in a network, said method comprising the steps of:

selecting other hosts in the network such that the selected other hosts are located in a plurality of geographical regions that are determinable;

determining, at a plurality of points in the network, first sets of information associated with the selected other hosts, respectively;

determining, at the plurality of points, second sets of information associated with the host; and

determining the geographical region of the host based on the geographical region of one or more of the selected other hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information.

Claim 2 (original): The method of claim 1, wherein the step of determining the first sets of information comprises the step of:

determining time delays in communicating with the selected other hosts from the plurality of points, respectively.

Claim 3 (original): The method of claim 1, wherein the step of determining the first sets of information comprises the step of:

determining numbers of hops in one or more routes in the network from the plurality of points to the selected other hosts, respectively.

Claim 4 (original): The method of claim 1, further comprising the step of:

determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the selected other hosts.

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Claim 5 (original): The method of claim 4, wherein the step of determining the geographical information comprises the step of:

determining longitudes of the last identifiable routers in the respective routes.

Claim 6 (original): The method of claim 4, wherein the step of determining the geographical information comprises the step of:

determining latitudes of the last identifiable routers in the respective routes.

Claim 7 (original): The method of claim 1, wherein the step of determining the second set of information comprises the step of:

determining time delays in communicating with the host from the plurality of the points, respectively.

Claim 8 (original): The method of claim 1, wherein the step of determining the second set of information comprises the step of:

determining a number of hops in each route in the network to the host from the plurality of the points, respectively.

Claim 9 (original): The method of claim 1, further comprising the step of:

determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the host.

Claim 10 (original): The method of claim 9, wherein the step of determining the geographical information comprises the step of:

determining longitudes of the last identifiable routers in the respective routes.

Claim 11 (original): The method of claim 9, wherein the step of determining the geographical information comprises the step of:

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determining latitudes of the last identifiable routers in the respective routes.

Claim 12 (original): The method of claim 1, further comprising the step of:
receiving, from the plurality of points, the first sets of information associated with the selected other hosts; and
merging the first sets of information received for each of the other hosts.

Claim 13 (original): The method of claim 1, further comprising the step of:
receiving, from the plurality of points, the second sets of information associated with the host; and
merging the second sets of information received for the host.

Claim 14 (original): The method of claim 1, further comprising the steps of:
parsing names of the selected other hosts to determine geographical
information about the selected other hosts; and
including the determined geographical region information in the first sets of information.

Claim 15 (original): The method of claim 1, wherein the step of determining the geographical region of the host comprises the steps of:
classifying the selected other hosts according to their respective geographical regions;
determining mean vectors of the first sets of information associated with the classified selected other hosts; and
determining Mahalanobis distances of the determined mean vectors from the second sets of information.

Claim 16 (original): The method of claim 15, further comprising the steps of:
selecting one of the determined mean vectors with shortest Mahalanobis distance from the second sets of information; and

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determining the geographical region of the host to be same as the geographical region of the classified selected other hosts whose respective determined mean vector is the selected one of the determined means.

Claim 17 (original): A system, comprising:

a plurality of first processors that determine first sets of information associated with a plurality of first hosts located in a plurality of geographical regions that are determinable, and determine second sets of information associated with a second host whose geographical region is unknown; and

at least a second processor that receives the first and second sets of information, determines means of the first sets of information by geographical region, and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information.

Claim 18 (original): The system of claim 17, wherein the plurality of first processors are placed at different points in a network that includes the plurality of first hosts and the second host.

Claim 19 (original): The system of claim 17, wherein the first sets of information include traceroute information associated with the plurality of first hosts, respectively.

Claim 20 (original): An apparatus, comprising:

a memory including,

program code that receives first sets of information associated with a plurality of first hosts located in a plurality of geographical regions that are determinable, receives second sets of information associated with a second host whose geographical region is unknown, and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information; and

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a processor that executes the program code.

Claim 21 (original): The apparatus of claim 20, wherein the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts.

Claim 22 (original): The apparatus of claim 20, wherein the second sets of information includes time delays and number of hops to the second host, as determined from a plurality of points in a network that includes the plurality of first hosts and the second host.